

## ABSTRACT OF THE DISCLOSURE

Forces and moments are detected in a distinguishing manner by a simple structure. A supporting member (20) is positioned below a force receiving member (10), which receives forces to be detected, and between these components, at least two columnar force transmitting members (11, 12) are connected. Connecting members having flexibility are interposed at the upper and lower ends of each of columnar force transmitting members (11, 12) so that columnar force transmitting members (11, 12) can become inclined when force receiving member (10) becomes displaced upon receiving a force. Sensors (21, 22) are positioned at the respective connection parts of columnar force transmitting members (11, 12) and supporting member (20) to detect forces that are transmitted from the respective columnar force transmitting members (11, 12) to supporting member (20). Based on the detection values of sensors (21, 22), detection processing unit 30 detects, in a distinguishing manner, forces and moments acting on force receiving member (10). When four columnar force transmitting members are used, all of forces  $F_x$ ,  $F_y$ , and  $F_z$  and moments  $M_x$ ,  $M_y$ , and  $M_z$  can be detected.